Amendments to the Claims:

Claims 1 to 4, 6 to 8, 12 to 15 and 17 to 19 are amended as set forth hereinafter.

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A coordinate measuring apparatus for measuring a workpiece, said coordinate measuring apparatus defining coordinate directions (x, y, z) and comprising:

a probe head movable in said coordinate directions (x, y, z);

a probe pin or probe pins which can be attached to said probe head;

said probe pin or said probe pins having a plurality of shafts having respective ends;

a plurality of contact bodies attached to corresponding ones of said ends of said shafts;

at least two of said shafts of one of said probe pins having different orientations when said probe pin is attached to said probe head;

a control and evaluation unit for controlling the measuring sequence and for evaluating the recorded measuring points;

said control and evaluation unit functioning to carry out a method including the steps of:

determining at least one characteristic ~~direction~~ directional datum [[($\vec{n}_i$)]] ($\vec{n}_{Ai}$ or $\vec{n}_{Ii}$) for the points, which are to be measured, of a geometric element on said workpiece either

PAGE 8/16 * RCVD AT 10/24/2005 5:48:28 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/35 * DNIS:2738300 * CSID:301 869 8929 * DURATION (mm-ss):04-16

from measured measuring points (P_1 to P_4) or from predefined desired data of said geometric element; and,

determining one or several probe shafts of the one or several of the measuring points of the geometric element which are suitable from said directional ~~data~~ datum $[[(\vec{n}_i)]]$ $(\vec{n}_{Ai}$ or $\vec{n}_{Ii})$.

2. (Currently Amended) The coordinate measuring apparatus of claim 1, wherein said control and evaluation unit determines said directional datum $(\vec{n}_{Ai}$ or $\vec{n}_{Ii})$ as at least one vector $[[(\vec{n}_i)]]$ $(\vec{n}_{Ai}$ or $\vec{n}_{Ii})$ for said geometric element ~~as directional data~~.

3. (Currently Amended) The coordinate measuring apparatus of claim 2, wherein said control and evaluation unit assigns a vector $[[(\vec{A}_j)]]$ $(\vec{s}_j)$ to each of said probe shafts; and, said vector $[[(\vec{A}_j)]]$ $(\vec{s}_j)$ points in the longitudinal direction of said probe shaft.

4. (Currently Amended) The coordinate measuring apparatus of claim 1, wherein said control and evaluation unit determines a probe shaft as suitable; and, said probe shaft has a longitudinal direction and said longitudinal direction of said probe shaft and said directional datum $[[(\vec{n}_i)]]$ $(\vec{n}_{Ai}$ or $\vec{n}_{Ii})$ of said geometric element conjointly define an angle (β_{ij}).

5. (Original) The coordinate measuring apparatus of claim 4, wherein said control and evaluation apparatus considers said angle (β_{ij}) as lying within a predefined angular region $(\beta_{ij} \pm \epsilon)$.

6. (Currently Amended) The coordinate measuring apparatus of claim 2, wherein said control and evaluation unit uses the

PAGE 9/16 * RCVD AT 10/24/2005 5:48:28 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/35 * DNIS:2738300 * CSID:301 869 8929 * DURATION (mm-ss):04-16

surface normal at at least one point of said geometric element as [[a]] said one vector ($\vec{n}_{Ai}$) of said geometric element for outer elements.

7. (Currently Amended) The coordinate measuring apparatus of claim 2, wherein said control and evaluation unit uses ~~the~~ a vector, which points in the direction of the primary axis (a_z) of said geometric element, as [[a]] said one vector ($\vec{n}_{Ii}$) of said geometric element for inner elements.

8. (Currently Amended) The coordinate measuring apparatus of claim 5, wherein said control and evaluation unit determines said directional datum ($\vec{n}_{Ai}$ or $\vec{n}_{Ii}$) as at least one vector ($\vec{n}_{Ai}$ or $\vec{n}_{Ii}$) for said geometric element; said control and evaluation unit assigns a vector ($\vec{s}_j$) to each of said probe shafts; said vector ($\vec{s}_j$) points in the longitudinal direction of said probe shaft; and, said control and evaluation unit defines said angle (β_{ij}) between the vector [[($\vec{n}_i$)]] ($\vec{n}_{Ai}$ or $\vec{n}_{Ii}$) of said geometric element and the vector ($\vec{s}_j$) of said probe shaft as 180° ± ϵ or 0° ± ϵ where ϵ can assume a value between 0° and 90°.

9. (Original) The coordinate measuring apparatus of claim 1, wherein said control and evaluation unit, when scanning said geometric element with a probe shaft determined as not suitable, converts the measuring points, which were scanned with said probe shaft determined as unsuitable, to the probe shaft determined as suitable.

10. (Original) The coordinate measuring apparatus of claim 9, wherein said control and evaluation unit measures said geometric

PAGE 10/16 * RCVD AT 10/24/2005 5:48:28 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/35 * DNIS:2738300 * CSID:301 869 8929 * DURATION (mm-ss):04-16

element with said probe shaft determined as suitable.

11. (Original) The coordinate measuring apparatus of claim 9, wherein said control and evaluation unit outputs a fault announcement for the case where no suitable probe shaft is found.

12. (Currently Amended) A method for measuring a workpiece on a coordinate measuring apparatus defining coordinate directions (x, y, z), the coordinate measuring apparatus includes: a probe head movable in said coordinate directions (x, y, z); a probe pin or probe pins which can be attached to said probe head; said probe pin or said probe pins having a plurality of shafts having respective ends; a plurality of contact bodies attached to corresponding ones of said ends of said shafts; and, at least two of said shafts of one of said probe pins having different orientations when said probe pin is attached to said probe head; the method comprising the steps of:

determining at least one characteristic ~~direction~~ directional datum $[[(\vec{n}_i)]]$ $(\vec{n}_{Ai}$ or $\vec{n}_{Ti})$ for the points, which are to be measured, of a geometric element on said workpiece either from measured measuring points (P_1 to P_4) or from predefined desired data of said geometric element; and,

determining one or several probe shafts of the one or several of the measuring points of the geometric element which are suitable from said directional ~~data~~ datum $[[(\vec{n}_i)]]$ $(\vec{n}_{Ai}$ or $\vec{n}_{Ti})$.

13. (Currently Amended) The method of claim 12, wherein ~~at least one~~ said directional datum $(\vec{n}_{Ai}$ or $\vec{n}_{Ti})$ is determined as a vector $[[(\vec{n}_i)]]$ $(\vec{n}_{Ai}$ or $\vec{n}_{Ti})$ for said geometric element as directional datum ~~data is determined~~.

PAGE 11/16 * RCVD AT 10/24/2005 5:48:28 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/35 * DNIS:2738300 * CSID:301 869 8929 * DURATION (mm-ss):04-16

14. (Currently Amended) The method of claim 13, wherein a vector [[($\vec{A}_j$)]] ($\vec{s}_j$) is assigned to each of said probe shafts; and, said vector [[($\vec{A}_j$)]] ($\vec{s}_j$) points in the longitudinal direction of said probe shaft.

15. (Currently Amended) The method of claim 12, wherein a probe shaft is determined as suitable; and, said probe shaft has a longitudinal direction and said longitudinal direction of said probe shaft and the directional datum [[($\vec{n}_i$)]] ($\vec{n}_{Ai}$ or $\vec{n}_{Ti}$) of said geometric element conjointly define an angle (β_{ij}).

16. (Original) The method of claim 15, wherein said angle (β_{ij}) lies within a predefined angular region ($\beta_{ij} \pm \epsilon$).

17. (Currently Amended) The method of claim 16, wherein said directional datum ($\vec{n}_{Ai}$ or $\vec{n}_{Ti}$) is determined as a vector ($\vec{n}_{Ai}$ or $\vec{n}_{Ti}$) for said geometric element as directional datum; a vector ($\vec{s}_j$) is assigned to each of said probe shafts; said vector ($\vec{s}_j$) points in the longitudinal direction of said probe shaft; and, said angle (β_{ij}) between ~~the vector~~ said directional datum [[($\vec{n}_i$)]] ($\vec{n}_{Ai}$ or $\vec{n}_{Ti}$) of said geometric element and the vector ($\vec{s}_j$) of said probe shaft is 180° ± ϵ or 0° ± ϵ where ϵ can assume a value between 0° and 90°.

18. (Currently Amended) The method of claim 13, wherein ~~the~~ said one vector ($\vec{n}_{Ai}$) of said geometric element, for outer elements, is the surface normal of said geometric element in at least one point of said geometric element.

19. (Currently Amended) The method of claim 13, wherein ~~the~~

PAGE 12/16 * RCVD AT 10/24/2005 5:48:28 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/35 * DNIS:2738300 * CSID:301 869 8929 * DURATION (mm-ss):04-16

said one vector ($\vec{n}_{Ii}$) of said geometric element, for inner elements, is in the direction of the primary axis of said geometric element.

20. (Original) The method of claim 12, wherein, when scanning said geometric element with a probe shaft determined as not suitable, the measuring points, which were scanned with said probe shaft determined as unsuitable, are converted to the probe shaft determined as suitable.

21. (Original) The method of claim 12, wherein said geometric element is measured with said probe shaft determined as suitable.

22. (Original) The method of claim 12, wherein a fault announcement is outputted for the case where no suitable probe shaft is found.

PAGE 13/16 * RCVD AT 10/24/2005 5:48:28 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/35 * DNIS:2738300 * CSID:301 869 8929 * DURATION (mm-ss):04-16